

**CLAIMS****What is claimed is:**

1. A melt extrusion spinneret plate having at least one capillary orifice  
5 for producing at least a single filament of circular cross sectional shape,  
said orifice having a perimeter of non-circular cross sectional shape,  
a perimeter measure  $p_c$ , and  
an extrusion area, wherein,  
said perimeter measure  $p_c$ , is greater than either of:  $2\pi R$  and  $2\pi r$ ,  
10 and further wherein, said extrusion area is greater than  $\pi r^2$  and less  
than  $\pi R^2$ ,  
and further wherein,  $r$  is the radius of the largest circle inscribed by  
the orifice perimeter,  
and  $R$  is the radius of the largest circle circumscribing the orifice  
15 perimeter.
2. The melt extrusion spinneret plate according to Claim 1, wherein said perimeter measure  $p_c$ , is about 2 to about 10 times greater than either of  $2\pi R$  and  $2\pi r$ .  
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3. The melt extrusion spinneret plate according to Claim 1, wherein the orifice has about 5 to about 12 radially arranged legs.
4. The melt extrusion spinneret plate according to Claim 1, wherein the orifice has a cross-sectional area substantially the same as that area of a circular cross-section spinneret capillary having a radius  $R$  and,  
25 simultaneously, the orifice having a perimeter measure  $p_c$ , greater than the perimeter  $2\pi R$  of the circular cross-section spinneret capillary.
- 30 5. A process for making a nylon filament of circular cross-sectional shape comprising the steps of:  
supplying a molten polymer to a spin pack;

extruding the polymer through a spinneret plate having at least one orifice of a profiled non-circular shape to form a freshly extruded filament having a circular cross-section;

5        quenching the freshly extruded filament with conditioned air;  
drawing the filament, and  
winding the drawn filament.

6. The process of claim 5, further including the step of stabilizing the drawn filament using a heated fluid.

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7. The process of claim 5, further including the step of providing a yarn oil finish.

8. The process of claim 5, wherein the polymer has an RV of 40 to 65.

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9. The process of claim 5, wherein the polymer is extruded at a jet velocity in the range of 20 centimeters per second to 80 centimeters per second.

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10. The process of claim 5, wherein the filament is drawn by an amount of 1.0 to 2.0 times.

11. The process of claim 5, wherein the filament is wound at a speed of 4500 to 6500 meter per minute.

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12. A nylon filament of circular cross-sectional shape formed using the process of claim 5.